

# Addition & Subtraction Strategies

Numbers to 20

# Bridging Through 10 (Addition)

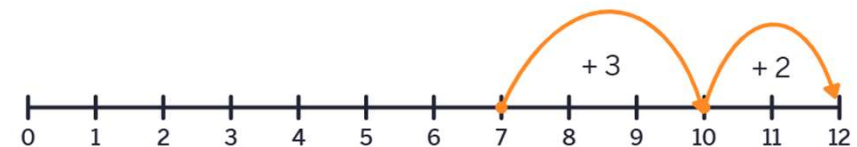
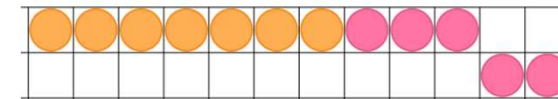
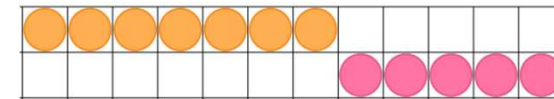
# Bridging Through 10 with Counters: Addition

**Bridging through 10** is a useful addition strategy. It involves adjusting numbers in a problem to create a sum of 10, which simplifies the calculation.

## To bridge through 10 with counters:

- Model the calculation with counters.
- Adjust the counters to make one row equal to 10.
- You now have 10 plus the remaining counters.
- How many counters do you have altogether?
- Model the calculation on a number line.
- Write the calculation as an equation.

Example:  $7 + 5$



$$7 + 5 = 13$$

A blue oval circles the number 7. A blue arrow points from the 7 to the number 3 below it. Another blue arrow points from the 5 to the number 2 below it.

# Bridging Through 10 with Cuisenaire Rods: Addition

**Bridging through 10** is a useful addition strategy. It involves adjusting numbers in a problem to create a sum of 10, which simplifies the calculation.

## To bridge through 10 with Cuisenaire rods:

- Use the rods to model the calculation.
- Think about what is needed to make 10.
- Break down one of the rods to make 10.
- How many do you have altogether?
- Model the calculation on a number line.
- Write the calculation as an equation.

Example:  $8 + 6$



8 and 2 make 10



I break the 6 rod down into 2 and 4. I now have 10 and 4 more.

$$8 + 6 = (8 + 2) + 4 = 10 + 4 = 14$$

# Subtraction

# Using Doubles and Near Doubles to Subtract

You can use **doubles and near doubles** to help you subtract.



If  $2 - 1 = 1$ , then



$12 - 1 = 11$



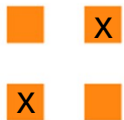
If  $3 - 1 = 2$ , then



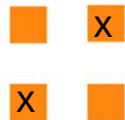
$13 - 1 = 12$

And if  $3 - 2 = 1$ , then

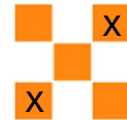
$13 - 2 = 11$



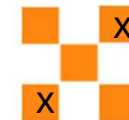
If  $4 - 2 = 2$ , then



$14 - 2 = 12$



If  $5 - 2 = 3$ , then





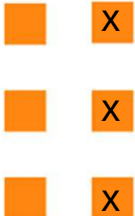


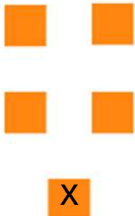

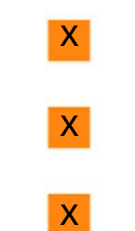


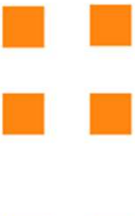



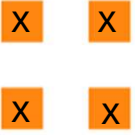
$15 - 2 = 13$

And if  $5 - 3 = 2$ , then

$15 - 3 = 12$

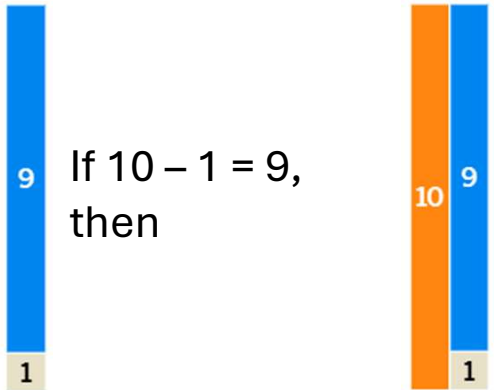
# Using Doubles and Near Doubles to Subtract

You can use **doubles** and **near doubles** to help you subtract.

 <p>If <math>6 - 3 = 3</math>, then</p>		 <p><math>16 - 3 = 13</math></p>	 <p>If <math>7 - 3 = 4</math>, then</p>		 <p><math>17 - 3 = 14</math></p>
			<p>And if <math>7 - 4 = 3</math>, then</p>		 <p><math>17 - 4 = 13</math></p>
 <p>If <math>8 - 4 = 4</math>, then</p>		 <p><math>18 - 4 = 14</math></p>	 <p>If <math>9 - 4 = 5</math>, then</p>		 <p><math>19 - 4 = 15</math></p>
			<p>And if <math>9 - 5 = 4</math>, then</p>		 <p><math>19 - 5 = 14</math></p>

# Using Bonds of 10 to Subtract

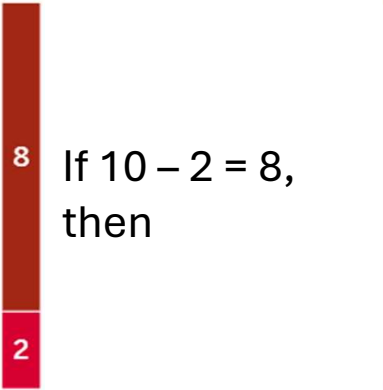
You can use **bonds of 10** to help you subtract.



A vertical number bond diagram with a blue bar on the left and an orange bar on the right. The blue bar is split into a top section labeled '9' and a bottom section labeled '1'. The orange bar is split into a top section labeled '10' and a bottom section labeled '1'.

If  $10 - 1 = 9$ ,  
then

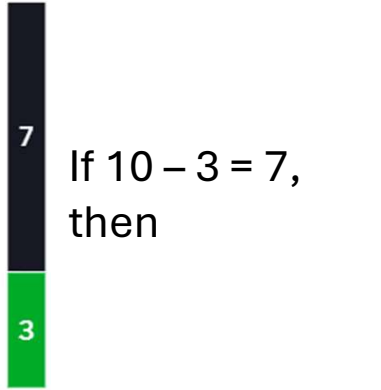
$20 - 1 = 19$



A vertical number bond diagram with a dark red bar on the left and an orange bar on the right. The dark red bar is split into a top section labeled '8' and a bottom section labeled '2'. The orange bar is split into a top section labeled '10' and a bottom section labeled '2'.

If  $10 - 2 = 8$ ,  
then

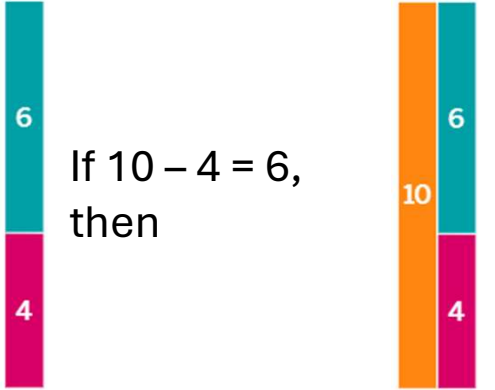
$20 - 2 = 18$



A vertical number bond diagram with a black bar on the left and an orange bar on the right. The black bar is split into a top section labeled '7' and a bottom section labeled '3'. The orange bar is split into a top section labeled '10' and a bottom section labeled '3'.

If  $10 - 3 = 7$ ,  
then

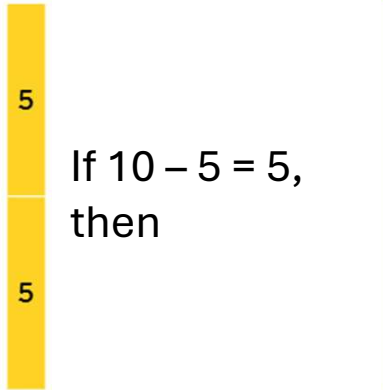
$20 - 3 = 17$



A vertical number bond diagram with a teal bar on the left and an orange bar on the right. The teal bar is split into a top section labeled '6' and a bottom section labeled '4'. The orange bar is split into a top section labeled '10' and a bottom section labeled '4'.

If  $10 - 4 = 6$ ,  
then

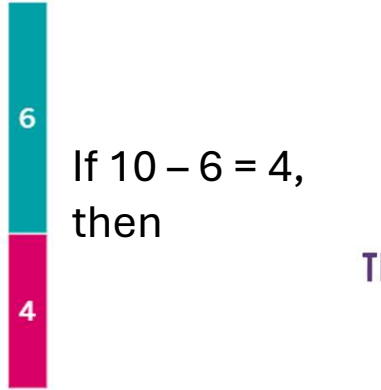
$20 - 4 = 16$



A vertical number bond diagram with a yellow bar on the left and an orange bar on the right. The yellow bar is split into a top section labeled '5' and a bottom section labeled '5'. The orange bar is split into a top section labeled '10' and a bottom section labeled '5'.

If  $10 - 5 = 5$ ,  
then

$20 - 5 = 15$




A vertical number bond diagram with a teal bar on the left and an orange bar on the right. The teal bar is split into a top section labeled '6' and a bottom section labeled '4'. The orange bar is split into a top section labeled '10' and a bottom section labeled '4'.

If  $10 - 6 = 4$ ,  
then

$20 - 6 = 14$


# Using Bonds of 10 to Subtract

You can use **bonds of 10** to help you subtract.



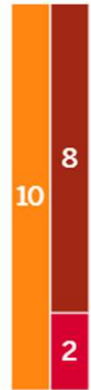
A vertical bar divided into two sections: a top black section labeled '7' and a bottom green section labeled '3'.

If  $10 - 7 = 3$ ,  
then




A vertical bar divided into two sections: a top orange section labeled '10' and a bottom green section labeled '3'.

$20 - 7 = 13$




A vertical bar divided into two sections: a top orange section labeled '10' and a bottom red section labeled '2'.

If  $10 - 8 = 2$ ,  
then




A vertical bar divided into two sections: a top dark red section labeled '8' and a bottom red section labeled '2'.

$20 - 8 = 12$



A vertical bar divided into two sections: a top blue section labeled '9' and a bottom light blue section labeled '1'.

If  $10 - 9 = 1$ ,  
then



A vertical bar divided into two sections: a top orange section labeled '10' and a bottom blue section labeled '1'.

$20 - 9 = 11$

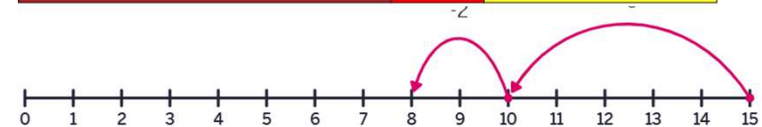
# Bridging Back Through 10: Subtraction

**Bridging back through 10** is a useful subtraction strategy. It involves subtracting to make 10 and then taking away whatever is left over.

To bridge through 10:

1. Model the calculation using Cuisenaire rods.
2. Partition the number being subtracted so it bridges through 10.
3. Subtract to reach 10, then take away the remaining amount.
4. Use knowledge of number bonds of 10 to identify what is left.
5. Record the calculation on a number line.
6. Write the calculation as an equation.

**Example:**  $15 - 7 =$



$$15 - 7 = (15 - 5) - 2 = 10 - 2 = 8$$

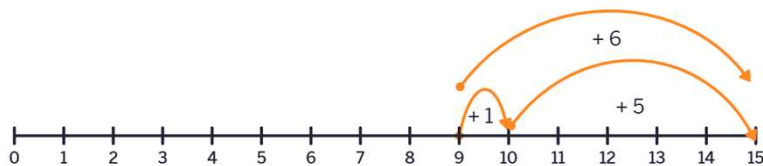
THE MATHS HUB  
ADVICE TUITION ASSESSMENT

# Subtraction: Shopkeeper's Addition

**Shopkeeper's addition** is a mental math technique used to calculate change. Instead of subtracting the purchase amount from the customer's money, the shopkeeper would “add up” the purchase amount to the amount tendered.

To subtract using shopkeeper's addition:

1. Rewrite the problem as a missing number addition calculation.
2. Use Cuisenaire rods to model the calculation. You may need to bridge through 10 to make the calculation easier.
3. Record it on a number line.
4. Write it as an equation.



**Example:**  $15 - 9 =$

What do I need to add to nine to get 15?

$$9 + ? = 15$$



I add one to get to 10, then I add five more.



$$9 + 6 = 15,$$

or

$$15 - 9 = 6$$

# Acknowledgements

- Images created using free virtual manipulatives by Amplify available at [Polypad.com](https://www.polypad.com).